



Performance Management

Lou Swentek

lswentek@eos.hitc.com

**ECS Release A SDPS/CSMS Critical Design Review
17 August 1995**

Performance Management Overview



Provides monitoring and analysis of resource and subsystem-level performance

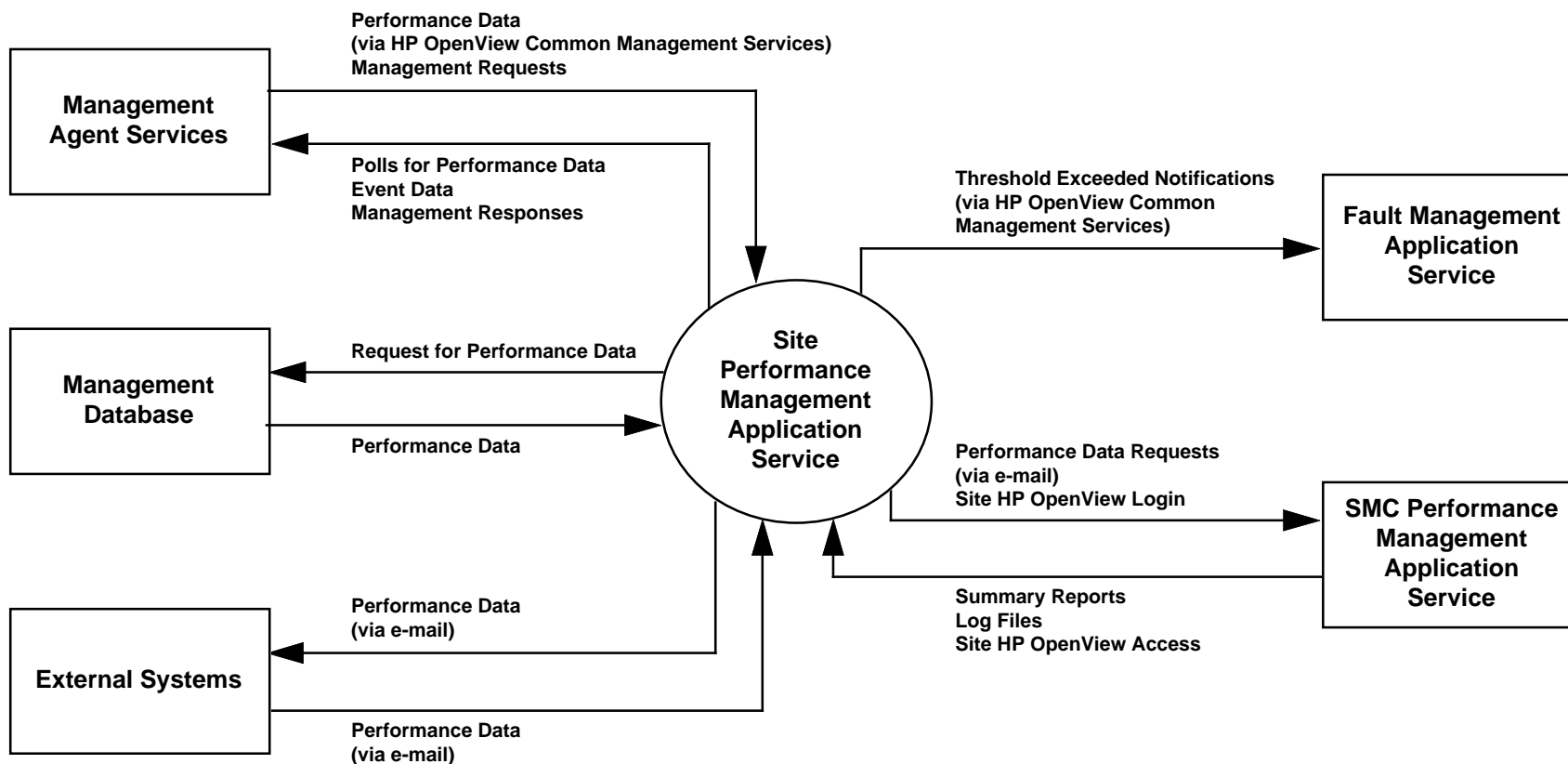
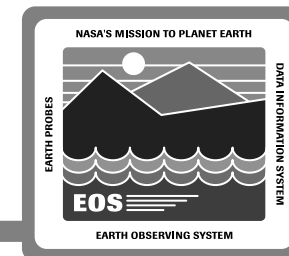
Real-time vs. Non-real-time

- **Real-time management of resources**
- **Non-real-time management of services**

COTS Selections

- **HP OpenView for network devices**
- **Performance Application for applications, processes**
- **Management Agent logging for service-specific**

Performance Management Context



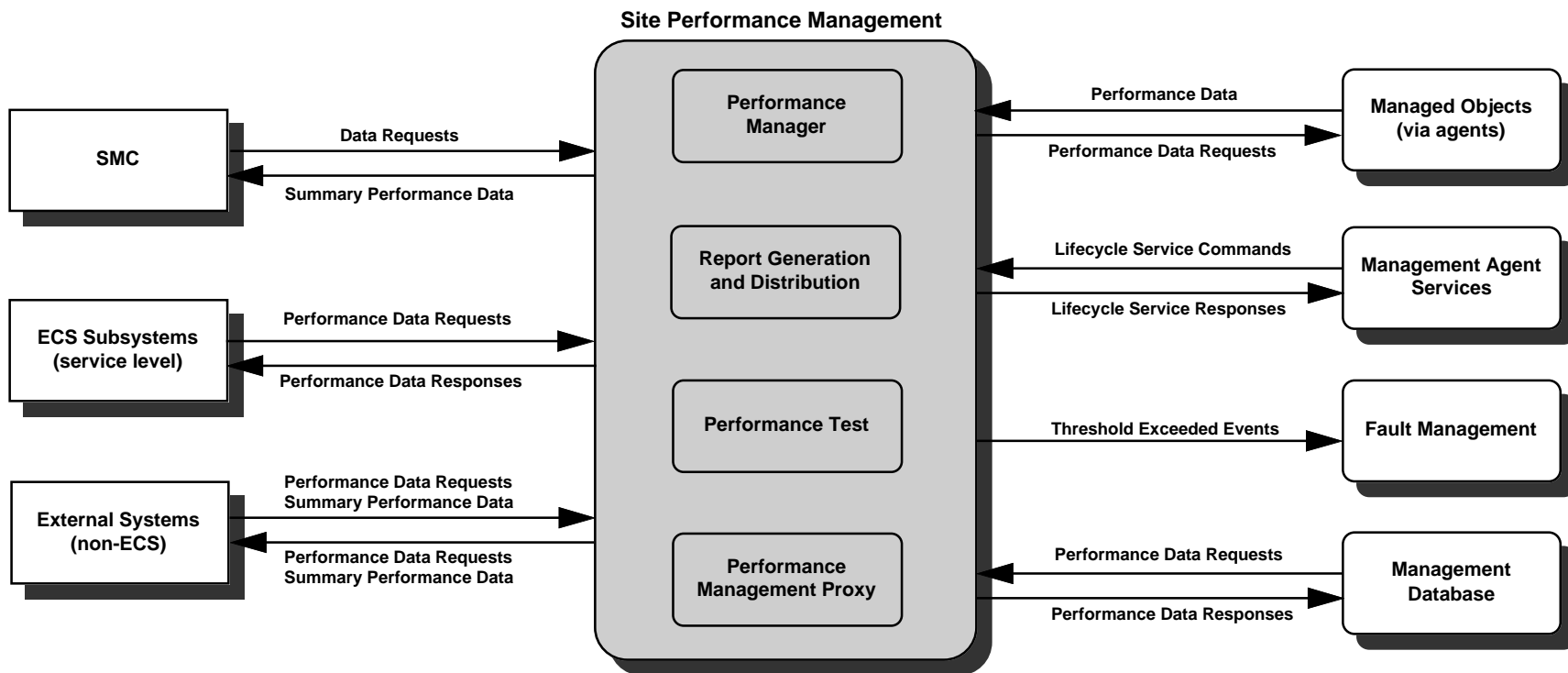
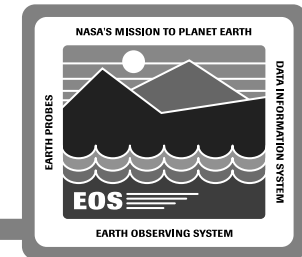
Performance Management Design



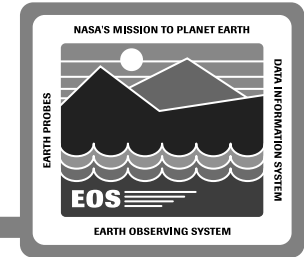
Components

- **Performance Manager**
 - Provides performance monitoring, analysis
 - COTS + configuration
- **Report Generation and Distribution**
 - Performance reporting (standard and ad hoc)
 - COTS + scripts
- **Performance Test**
 - Benchmarking
 - COTS
- **Performance Management Proxy**
 - Lifecycle services (startup, shutdown)
 - Reuse of ECS custom software

Performance Management Design (cont.)



Performance Management Design (cont.)



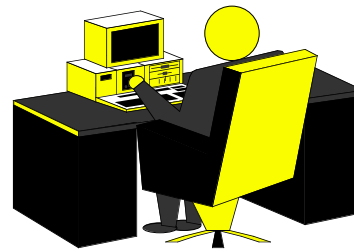
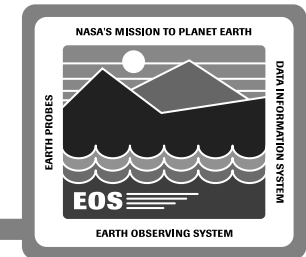
Interfaces

- **SMC - summary site performance data**
- **ECS Subsystems - subsystem resource performance data, service level performance data**
- **External systems (non-ECS) - performance summaries**
- **ECS resources (via Management Agent Services) - performance data**
- **Management Agent Services - lifecycle services commands**
- **Fault management - degradation of performance alerts**
- **Management Database - long-term performance data**

Operator Interface

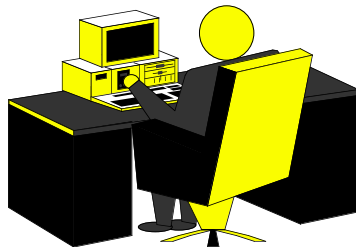
- **Via HP OpenView and Performance Application GUIs**

Performance Monitoring Views



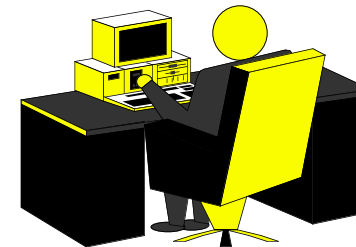
SMC Operator

- Generates system-wide performance data from summary information received from sites and logged in management database
- Can view performance of any ECS resources via HP OpenView



LSM Operator

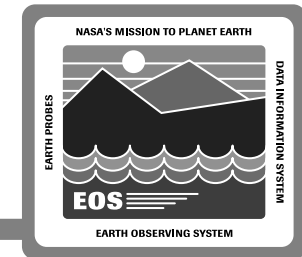
- Monitors all ECS resources in real time via HP OpenView and Performance Application screens
- Receives immediate notifications of ECS Application performance degradations via HP OpenView
- Can set metrics and thresholds to be checked for each managed resource



ECS Subsystem Operator

- Receives immediate notifications of subsystem resource (including ECS Application) performance degradation via e-mail
- Generates service-level performance data from logged information

Representative Performance Metrics



Host Metrics

Attribute Type	Attribute Description
Interfaces	<ul style="list-style-type: none"> Interface status No. of octets received on the interface
SNMP	<ul style="list-style-type: none"> No. of SNMP messages received No. of SNMP messages sent
SW Run	<ul style="list-style-type: none"> Avg. % of time over the last minute that the processor was not idle

Router Metrics

Attribute Type	Attribute Description
Interfaces	<ul style="list-style-type: none"> Interface status No. of octets received on the interface
SNMP	<ul style="list-style-type: none"> No. of SNMP messages received
Local system group	<ul style="list-style-type: none"> Avg. CPU busy % over the last minute
Local interface group	<ul style="list-style-type: none"> Five minute avg. of input bits per second on each interface

Global System Metrics

Attribute Type	Attribute Description
Summary	<ul style="list-style-type: none"> CPU use (% of total and seconds) No. and rate of physical disk I/Os
Memory use	<ul style="list-style-type: none"> Main memory use (percent of total) Swap space use on disk (percent of total)
User/process	<ul style="list-style-type: none"> No. of user sessions No. of processes active

Application Metrics

Attribute Type	Attribute Description
Summary	<ul style="list-style-type: none"> Application's CPU use (% of total and in secs) No. and rate of physical disk transfers
Process count	<ul style="list-style-type: none"> Avg. no. of processes in application
Disk	<ul style="list-style-type: none"> No. and rate of physical disk reads No. and rate of physical disk writes

ECS Application/Subsystem Metrics

Attribute Type	Attribute Description
Processing	<ul style="list-style-type: none"> CPU use for each PGE Disk space utilization for each PGE
Storage Management	<ul style="list-style-type: none"> Total staged data volume (in GB)
Data Server	<ul style="list-style-type: none"> No. of orders received No. of products delivered by media type

Additional representative performance metrics can be found in DID 305, Volume 13, Tables 6.2-2 through 6.2-10

Performance Reporting



Standard Reports

- Operators can select from
 - HP OpenView and Performance Application standard reports
 - Scripts provided for standardized management database reports
 - Operator customized scripts

Ad Hoc Reports

- Operators can generate from
 - HP OpenView
 - Ad hoc report available on any metric(s) for which data is stored
 - Management Database

Summary



Performance Management is COTS intensive

- **Main development effort is COTS configuration**
- **Development risk is low**
- **Reduced maintenance costs**
- **Flexibility to handle different metrics and thresholds**
- **Low impact as new metrics and thresholds are identified**